

Cellular Signalling

VOLUME CONTENTS
AND AUTHOR INDEX VOLUME 4, 1992



Pergamon Press

Oxford · New York · Seoul · Tokyo

Cellular Signalling

EDITOR-IN-CHIEF

MILES D. HOUSLAY, Molecular Pharmacology Group, Department of Biochemistry,
University of Glasgow, Glasgow G12 8QQ, Scotland, U.K.
Tel. 041 339-8855, ext. 5903

EDITORIAL BOARD

L. Birnbaumer (U.S.A.)
J. Bockaert (France)
M. Caron (U.S.A.)
J. E. Dumont (Belgium)
P. Greengard (U.S.A.)
J. Heller-Brown (U.S.A.)
R. Irvine (U.K.)
K. H. Jakobs (Germany)
B. E. Kemp (Australia)

A. Levitzki (Israel)
C. Londos (U.S.A.)
I. G. Macara (U.S.A.)
T. F. J. Martin (U.S.A.)
S. Nakanishi (Japan)
J. Pouyssegur (France)
E. Rozengurt (U.K.)
S. B. Shears (U.S.A.)
M. Ui (Japan)

Production Editor: A. P. Cullis

Journals Production Dept, Pergamon Press Ltd, Headington Hill Hall, Oxford OX3 0BW, U.K.

Publishing, Subscription and Advertising Offices

Pergamon Press Ltd, Headington Hill Hall, Oxford OX3 0BW (Tel: (0865) 794141; Fax: (0865) 60285).

Annual Institutional Subscription Rate (1993): £265.00 (US\$504.00). Sterling prices are definitive. US dollar prices are quoted for convenience only, and are subject to exchange rate fluctuation. Prices include postage and insurance and are subject to change without notice.

Subscription rates for Japan include despatch by air and prices are available on application.

All prices are subject to change without notice.

Subscription enquiries from customers in North America should be sent to: Pergamon Press Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, U.S.A., and for the remainder of the world to: Pergamon Press Ltd, Headington Hill Hall, Oxford OX3 0BW, U.K.

Whilst every effort is made by the publishers and editorial board to see that no inaccurate or misleading data, opinion or statement appear in this journal, they wish to make it clear that the data and opinions appearing in the articles and advertisements herein are the sole responsibility of the contributor or advertiser concerned. Accordingly, the publishers, the editorial board and editors and their respective employees, officers and agents accept no responsibility or liability whatsoever for the consequences of any such inaccurate or misleading data, opinion or statement.

Published 6 issues/annum in January, March, May, July, September and November

Copyright © 1993 Pergamon Press Ltd

Second class postage paid at Rahway, NJ. Postmaster send address corrections to Cellular Signalling, c/o Pergamon Press Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, U.S.A.

CONTENTS

NUMBER 1

MINI REVIEWS

Brain signal transduction disturbances in neurodegenerative disorders

1 C. J. Fowler, R. F. Cowburn and C. O'Neill

Modulation of hormone-sensitive phospholipase C

11 G. Guillon, B. Mouillac and A. L. Savage

GENERAL PAPERS

A Ca^{2+} -ATPase from rat parotid gland plasma membranes has the characteristics of an ecto-ATPase

25 P. H. Cheung, F. J. Dowd, J. E. Porter and L.-S. Li

Characterization of the cyclic nucleotide phosphodiesterase isoenzymes present in rat epididymal fat cells

37 C. Schmitz-Peiffer, M. L. Reeves and R. M. Denton

Effect of phorbol myristate acetate on release of arachidonic acid and its metabolites in the osteoblastic MOB 3-4 cell line and its subclone, MOB 3-4-F2

51 T. Kawase, M. Orikasa and A. Suzuki

Effects of isoproterenol and forskolin on carbachol- and fluoroaluminate-induced polyphosphoinositide hydrolysis, inositol trisphosphate production, and contraction in bovine iris sphincter smooth muscle: interaction between cAMP and IP_3 second messenger systems

61 S. D. Tachado, R. A. Akhtar, C.-J. Zhou and A. A. Abdel-Latif

Inhibition of Ca^{2+} -induced calcitonin secretion by somatostatin: roles of voltage dependent Ca^{2+} channels and G-proteins

77 H. Scherübl, J. Hescheler, G. Schultz, D. Kliemann, A. Zink, R. Ziegler and F. Raue

Cholera and pertussis toxins modify regulation of glucose transport activity in rat adipose cells: evidence for mediation of a cAMP-independent process by G-proteins

87 R. C. Honnor, S. Naghshineh, S. W. Cushman, J. Wolff, I. A. Simpson and C. Londres

$1,25(\text{OH})_2\text{D}_3$ increases membrane associated protein kinase C in MDBK cells

99 M. Simboli-Campbell, D. J. Franks and J. E. Welsh

The rat lacrimal gland expresses the α isoform of PKC. Further evidence for the PMA-activated and phospholipid-independent protein kinase activity

111 D. Zoukhri, J.-M. Pelosin, P. Mauduit, E. Chambaz, C. Sergheraert and B. Rossignol

Erratum

121

Forthcoming Papers

i

NUMBER 2

MINI REVIEWS

Signal transduction system for growth factor receptors associated with tyrosine kinase activity: epidermal growth factor receptor signalling and its regulation

123 *S. Iwashita and M. Kobayashi*

The role of protein kinase C in insulin action

133 *R. V. Farese, M. L. Standaert, T. Arnold, B. Yu, T. Ishizuka, J. Hoffman, M. Vila and D. R. Cooper*

GENERAL PAPERS

Importance of substrate conformation in the phosphorylation of chromatin-associated proteins by exogenous protein kinase C

145 *A. Testori, L. A. Burgoyne and A. W. Murray*

Functional reconstitution of a receptor-activated signal transduction pathway in *Xenopus laevis* oocytes using the cloned human C5a receptor

153 *P. Schultz, P. Stannek, S. C. Bischoff, C. A. Dahinden and P. Gierschik*

Inducible overexpression of human protein kinase C α in NIH 3T3 fibroblasts results in growth abnormalities

163 *G. Finkenzeller, D. Marmé and H. Hug*

Heterogeneity of protein kinase C in cultured rat mesangial cells

179 *J.-P. Oudinet, D. Feliers and M. Pavlovic-Hournac*

Protein phosphorylation regulated by cyclic nucleotide-dependent protein kinases in cell extracts and in intact human lymphocytes

189 *M. Halbrügge, M. Eigenthaler, C. Polke and U. Walter*

Expression of nanomolar-affinity binding sites for melatonin in Syrian hamster RPMI 1846 melanoma cells

201 *D. S. Pickering and L. P. Niles*

Dihydropyridine binding of the calcium channel complex from skeletal muscle is modulated by subunit interaction

209 *R. Woscholski and D. Marmé*

Autocrine biological effects of glycosyl inositol phosphate produced by reconstituted pig thyroid follicles: role of pertussis toxin sensitive G proteins

219 *L. Martiny, B. Delemer, E. Petitfrère, B. Lambert, C. Jacquemin and B. Haye*

Forthcoming Papers

i

NUMBER 3

MINI REVIEWS

Molecular basis of pharmacological heterogeneity of GABA_A receptors

231 *W. Sieghart*

MAP kinases—ubiquitous signal transducers and potentially important components of the cell cycling machinery in eukaryotes

239 *N. G. Anderson*

GENERAL PAPERS

Cross-talk between cAMP and formylmet-leu-phe in human neutrophils: phosphorylation of a 52,000 molecular weight protein

247 *C. Bengis-Garber and N. Gruener*

Autoregulation of prostaglandin E₂-induced Ca²⁺ influx in osteoblast-like cells: inhibition by self-induced activation of protein kinase C

261 *H. Tokuda, M. Miwa, Y. Oiso and O. Kozawa*

v-SRC induces elevated levels of diglyceride by stimulation of phosphatidylcholine hydrolysis

267 *A. W. Wyke, S. J. Cook, E. E. MacNulty and M. J. O. Wakelam*

Mitogen stimulation of T-cells increases c-Fos and c-Jun protein levels, AP-1 binding and AP-1 transcriptional activity

275 *A. Kvanta, E. Kontny, M. Jondal, S. Okret and B. B. Fredholm*

Alpha-1 adrenergic receptor number and receptor density in isolated hepatocytes from foetal, juvenile and adult rats

287 *D. Scheglmann and D. Dettmer*

Activation of protein kinase C modulates dihydroxycholecalciferol synthesis in rat renal tubules

293 *V. M. Weaver, D. J. Franks and J. Welsh*

A purification strategy for inositol 1,4,5-trisphosphate 3-kinase from rat liver based upon heparin interaction chromatography

303 *A. Conigrave, A. Patwardhan, L. Broomhead and B. Roufogalis*

Increased phosphorylation of nuclear substrates for rat brain protein kinase C in regenerating rat liver nuclei

313 *M. Mazzoni, C. Carini, A. Matteucci, A. M. Martelli, V. Bertagnolo, M. Previati, R. Rana, A. Cataldi and S. Capitani*

Pertussis toxin reverses prostaglandin E₂- and somatostatin-induced inhibition of rat parietal cell H⁺-production

321 *J. Schmidtler, W. Rosenthal, S. Offermanns, V. Schusdziarra, M. Classen and W. Schepp*

Contents

- Prostaglandin E₂ can bimodally inhibit and stimulate the epididymal adipocyte adenylyl cyclase activity** 331 *R. Cohen-Luria and G. Rimon*

- Erratum** 337

- Forthcoming Papers** i

NUMBER 4

MINI REVIEWS

- Recent evidence for common signalling mechanisms among immunoreceptors that recognize foreign antigens** 339 *D. Holowka and B. Baird*

- Insulin receptor gene mutation: a molecular genetical and functional analysis** 351 *H. Makino, M. Taira, F. Shimada, N. Hashimoto, Y. Suzuki, O. Nozaki, Y. Hatanaka and S. Yoshida*

GENERAL PAPERS

- Alterations in G-protein expression, G_i function and stimulatory receptor-mediated regulation of adipocyte adenylyl cyclase in a model of insulin-resistant diabetes with obesity** 365 *T. M. Palmer, P. V. Taberner and M. D. Houslay*

- Involvement of pertussis toxin-sensitive and -insensitive GTP-binding proteins in luteinizing hormone exocytosis distal to second messenger generation** 379 *J. S. Davidson, I. K. Wakefield, P. A. van der Merwe and R. P. Millar*

- Changes in polyphosphoinositide levels in rat liver nuclei in response to prolactin, a known hepatic mitogen** 385 *P. Santi, A. M. Martelli, R. S. Gilmour, E. Falcieri, R. Rana, A. Cataldi, G. Lattanzi, R. Bareggi and L. Cocco*

- Protein kinase C initially inhibits the induction of meiotic cell division in *Xenopus* oocytes** 393 *B. J. Stith, M. L. Goalstone and A. J. Kirkwood*

- Two protein kinase C activators, bryostatin-1 and phorbol-12-myristate-13-acetate, have different effects on haemopoietic cell proliferation and differentiation** 405 *S. B. Ng and G. R. Guy*

Contents

- Adaptive increase in adenylyl cyclase activity in NG108-15 and S49 cells induced by chronic treatment with inhibitory drugs is not due to a decrease in cyclic AMP concentrations 417 *J. M. Thomas and B. B. Hoffman*
- Microinjection of the α -subunit of the G protein $G_{\alpha 2}$, but not $G_{\alpha 1}$, reduces a voltage-sensitive calcium current 429 *H. J. Man-Son-Hing, J. Codina, J. Abramowitz and P. G. Haydon*
- Autophosphorylation of *Mucor rouxii* cAMP-dependent protein kinase and its role in holoenzyme activation 443 *S. Rossi, M. Guthmann and S. Moreno*
- Inhibition of platelet aggregation by the cAMP-phosphodiesterase inhibitor, cilostamide, may not be associated with activation of cAMP-dependent protein kinase 453 *M. Nishikawa, F. Komada, K. Morita, K. Deguchi and S. Shirakawa*
- Forthcoming Papers i

NUMBER 5

MINI REVIEWS

- Signalling across the endoplasmic reticulum membrane: potential mechanisms 465 *B. D. Price*
- The cyclic nucleotide phosphodiesterases of *Dictyostelium discoideum*: molecular genetics and biochemistry 471 *J. Franke and R. H. Kessin*

GENERAL PAPERS

- Phorbol ester-like action of staurosporine on the cAMP response to prostaglandin E_2 in two macrophage-like cell lines at distinct differentiation stages 479 *T. Kawase, M. Orikasa and A. Suzuki*
- Granulocyte-macrophage colony-stimulating factor primes phospholipase D activity in human neutrophils *in vitro*: role of calcium, G-proteins and tyrosine kinases 487 *S. Bourgoin, P. E. Poubelle, N. W. Liao, K. Umezawa, P. Borgeat and P. H. Naccache*
- Differential up-regulation of specific and azurophilic granule membrane markers in electropermeabilized neutrophils 501 *H. W. M. Niessen and A. J. Verhoeven*

Rapid priming of calcium mobilization and superoxide anion production in human neutrophils by substimulatory concentrations of phorbol esters: a novel role for protein kinase C and tyrosine phosphorylation in the up-modulation of signal transduction	511	<i>C. Gilbert, M. Gaudry and P. H. Naccache</i>
Evidence on the role of three calcium pools in Ca-ionophore A23187-stimulated rat blood platelet aggregation	525	<i>V. Jančinová, R. Nozál and M. Petříková</i>
Overexpression of pp60 ^{c-src} is associated with altered regulation of adenylyl cyclase	531	<i>D. K. Luttrell, W. P. Hausdorff, J. E. Moyers, T. M. Gilmer, S. J. Parsons, M. G. Caron and R. J. Lefkowitz</i>
Adenosine inhibits divalent cation influx across human neutrophil plasma membrane via surface adenosine A2 receptors	543	<i>S. Tsuruta, S. Ito and H. Mikawa</i>
Modulation of human growth hormone binding to somatogenic and lactogenic receptors by monoclonal antibodies to human growth hormone	553	<i>T. Amit, R. J. Barkey, M. B. H. Youdim and Z. Hochberg</i>
Immunological identification of protein kinase C- α and protein kinase C- δ in cultured rat mesangial cells: differential sensitivity of the two isoforms towards the protein kinase inhibitor H ₇	559	<i>J. P. Oudinet, D. Feliers and M. Pavlovic-Hournac</i>
Prolonged activation of inhibitory somatostatin receptors increases adenylate cyclase activity in wild-type and G _{sa} -deficient (cyc ⁻) S49 mouse lymphoma cells	571	<i>J. M. Thomas, S. R. Meier-Davis and B. B. Hoffman</i>
Low molecular mass phosphoproteins from the frog rod outer segments form a complex with 48 kDa protein	583	<i>G. B. Krapivinsky, A. L. Malenyov, I. V. Zaikina and E. E. Fesenko</i>
Forthcoming Papers	i	

NUMBER 6

MINI REVIEWS

- 595 *J. J. Sando, M. C. Maurer, E. J. Bolen and C. M. Grisham*
 Role of cofactors in protein kinase C activation

- 611 *O.-B. Tysnes*
 Inositol phospholipid metabolism in resting and stimulated human platelets

GENERAL PAPERS

- 619 *S. P. Singh, K. Anwer, Yeshao Wen and B. M. Sanborn*
 Inhibition of oxytocin-stimulated phosphoinositide turnover in rat myometrium by pertussis and cholera toxins may involve protein kinase A activation

- 627 *B. Ogiso, F. J. Hughes, J. E. Davies and C. A. G. McCulloch*
 Fibroblastic regulation of osteoblast function by prostaglandins

- 641 *A. M. Brant, S. McCoid, H. M. Thomas, S. A. Baldwin, A. Davies, J. C. Parker, E. M. Gibbs and G. W. Gould*
 Analysis of the glucose transporter content of islet cell lines: implications for glucose-stimulated insulin release

- 651 *B. P. Salimath and G. Savitha*
 Mechanism of inhibition by cyclic AMP of protein kinase C-triggered respiratory burst in Ehrlich ascites tumour cells

- 665 *R. J. Isfort and D. B. Cody*
 Serum and growth factors stimulate ribosomal RNA processing in Syrian hamster embryo cells: divergence of this signalling pathway from immediate-early gene expression

- 675 *I. Tamm, T. Kikuchi, J. Krueger and J. S. Murphy*
 Dissociation between early loss of actin fibres and subsequent cell death in serum-deprived quiescent Balb/c-3T3 cells

- 687 *A. J. Cristóvão and C. A. M. Carvalho*
 Ins(1,4,5)P₃ induces Ca²⁺ release from brain microsomes loaded either by the Ca²⁺ ATPase or by the Na⁺/Ca²⁺ exchanger

- 697 *V. A. Maltsev*
 A negative resistance region underlies the triggering property of membrane potential in human T-lymphocytes

- 709 *T. Hermsdorf and D. Dettmer*
 Phorbol ester effects on hormonal responses in freshly isolated short-term incubated and cultured hepatocytes

- 715 *M. Cadrin, N. McFarlane-Anderson, L. H. Aasheim, H. Kawahara, D. J. Franks, N. Marceau and S. W. French*
 Differential phosphorylation of CK8 and CK18 by 12-O-tetradecanoyl-phorbol-13-acetate in primary cultures of mouse hepatocytes

Contents

Time-dependent inhibition of inositol-1,4,5-trisphosphate-5-phosphatase by calmidazolium chloride in rat GH ₃ cells	723	C. J. Fowler and A.-M. Eriksson
Activation of phospholipase C by different effectors in rat placental cells	727	C. Tertrin-Clary, M.-P. De La Llosa-Hermier, M. Roy, M.-C. Chenut, C. Hermier and P. De La Llosa
G-protein-coupled A ₁ adenosine receptors in coated vesicles of mammalian brain: characterization by radioligand binding and photoaffinity labelling	737	G. González-Calero, A. Cubero and K.-N. Klotz
'Cross-talk' between phospholipase C and adenylyl cyclase involves regulation of G-protein levels in GH ₃ rat pituitary cells	747	E. J. Paulssen, R. H. Paulssen, K. M. Gautvik and J. O. Gordeladze
Characterization of endogenous substrates for novel-type protein kinase C as well as conventional-type protein kinase C in primary cultured mouse epidermal cells	757	K. Nishikawa, S. Yamamoto, C. Otsuka and R. Kato
Activation of phospholipase D by endothelin-1 and other pharmacological agents in rabbit iris sphincter smooth muscle	777	Yawen Zhang and A. A. Abdel-Latif
Activation of solubilized G-proteins by muscarinic acetylcholine receptors	787	G. Hilf and K. H. Jakobs
The α_1 -adrenergic receptor in human erythrocyte membranes mediates interaction <i>in vitro</i> of epinephrine and thyroid hormone at the membrane Ca ²⁺ -ATPase	795	J. Sundquist, S. D. Blas, J. E. Hogan, F. B. Davis and P. J. Davis
Forthcoming Papers		i

AUTHOR INDEX

- Aasheim, L. H. 715
 Abdel-Latif, A. A. 61, 777
 Abramowitz, J. 429
 Akhtar, R. A. 61
 Amit, T. 553
 Anderson, N. G. 239
 Anwer, K. 619
 Arnold, T. 133

 Baird, B. 339
 Baldwin, S. A. 641
 Bareggi, R. 385
 Barkey, R. J. 553
 Bengis-Garber, C. 247
 Bertagnolo, V. 313
 Bischoff, S. C. 153
 Blas, S. D. 795
 Bolen, E. J. 595
 Borgeat, P. 487
 Bourgoïn, S. 487
 Brant, A. M. 641
 Broomhead, L. 303
 Burgoyne, L. A. 145

 Cadrin, M. 715
 Capitani, S. 313
 Carini, C. 313
 Caron, M. G. 531
 Carvalho, C. A. M. 687
 Cataldi, A. 313, 385
 Chambaz, E. 111
 Chenut, M.-C. 727
 Cheung, P. H. 25
 Classen, M. 321
 Cocco, L. 385
 Codina, J. 429
 Cody, D. B. 665
 Cohen-Luria, R. 331
 Conigrave, A. 303
 Cook, S. J. 267
 Cooper, D. R. 133
 Cowburn, R. F. 1
 Cristóvão, A. J. 687
 Cubero, A. 737
 Cushman, S. W. 87

 Dahinden, C. A. 153
 Davidson, J. S. 379
 Davies, A. 641
 Davies, J. E. 627
 Davis, F. B. 795
 Davis, P. J. 795
 De La Llosa, P. 727
 De La Llosa-Hermier, M.-P. 727
 Deguchi, K. 453
 Delemer, B. 219
 Denton, R. M. 37
 Dettmer, D. 287, 709
 Dowd, F. J. 25

 Eigenthaler, M. 189
 Eriksson, A.-M. 723

 Falcieri, E. 385
 Farese, R. V. 133
 Feliars, D. 179, 559
 Fesenko, E. E. 583
 Finkenzeller, G. 163
 Fowler, C. J. 1, 723
 Franke, J. 471
 Franks, D. J. 99, 293, 715
 Fredholm, B. B. 275
 French, S. W. 715

 Gaudry, M. 511
 Gautvik, K. M. 747
 Gibbs, E. M. 641
 Gierschik, P. 153
 Gilbert, C. 511
 Gilmer, T. M. 531
 Gilmour, R. S. 385
 Goalstone, M. L. 393
 González-Calero, G. 737
 Gordeladze, J. O. 747
 Gould, G. W. 641
 Grisham, C. M. 595
 Gruener, N. 247
 Guillon, G. 11
 Guthmann, M. 443
 Guy, G. R. 405

Author Index

- Halbrügge, M. 189
 Hashimoto, N. 351
 Hatanaka, Y. 351
 Hausdorff, W. P. 531
 Haydon, P. G. 429
 Haye, B. 219
 Hermier, C. 727
 Hermsdorf, T. 709
 Hescheler, J. 77
 Hilf, G. 787
 Hochberg, Z. 553
 Hoffman, B. B. 417, 571
 Hoffman, J. 133
 Hogan, J. E. 795
 Holowka, D. 339
 Honnor, R. C. 87
 Houslay, M. D. 365
 Hug, H. 163
 Hughes, F. J. 627
- Isfort, R. J. 665
 Ishizuka, T. 133
 Ito, S. 543
 Iwashita, S. 123
- Jacquemin, C. 219
 Jakobs, K. H. 787
 Jančinová, V. 525
 Jondal, M. 275
- Kato, R. 757
 Kawahara, H. 715
 Kawase, T. 51, 479
 Kessin, R. H. 471
 Kikuchi, T. 675
 Kirkwood, A. J. 393
 Kliemann, D. 77
 Klotz, K.-N. 737
 Kobayashi, M. 123
 Komada, F. 453
 Kontny, E. 275
 Kozawa, O. 261
 Krapivinsky, G. B. 583
 Krueger, J. 675
 Kvanta, A. 275
- Lambert, B. 219
 Lattanzi, G. 385
 Lefkowitz, R. J. 531
 Li, Lin-Sheng 25
 Liao, N. W. 487
 Londos, C. 87
 Luttrell, D. K. 531
- MacNulty, E. E. 267
 Makino, H. 351
 Malenyov, A. L. 583
 Maltsev, V. A. 697
 Man-Son-Hing, H. J. 429
 Marceau, N. 715
 Marmé, D. 163, 209
 Martelli, A. M. 313, 385
 Martiny, L. 219
 Matteucci, A. 313
 Mauduit, P. 111
 Maurer, M. C. 595
 Mazzoni, M. 313
 McCoid, S. 641
 McCulloch, C. A. G. 627
 McFarlane-Anderson, N. 715
 Meier-Davis, S. R. 571
 Merwe, P. A. van der 379
 Mikawa, H. 543
 Millar, R. P. 379
 Miwa, M. 261
 Moreno, S. 443
 Morita, K. 453
 Mouillac, B. 11
 Moyers, J. E. 531
 Murphy, J. S. 675
 Murray, A. W. 145
- Naccache, P. H. 487, 511
 Naghshineh, S. 87
 Ng, S. B. 405
 Niessen, H. W. M. 501
 Niles, L. P. 201
 Nishikawa, K. 757
 Nishikawa, M. 453
 Nosál, R. 525
 Nozaki, O. 351

- O'Neill, C. 1
 Offermanns, S. 321
 Ogiso, B. 627
 Oiso, Y. 261
 Okret, S. 275
 Orikasa, M. 51, 479
 Otsuka, C. 757
 Oudinet, J.-P. 179, 559
- Palmer, T. M. 365
 Parker, J. C. 641
 Parsons, S. J. 531
 Patwardhan, A. 303
 Paulssen, E. J. 747
 Paulssen, R. H. 747
 Pavlovic-Hournac, M. 179, 559
 Pelosin, J.-M. 111
 Petitfrère, E. 219
 Petříková, M. 525
 Pickering, D. S. 201
 Polke, C. 189
 Porter, J. E. 25
 Poubelle, P. E. 487
 Previati, M. 313
 Price, B. D. 465
- Rana, R. 313, 385
 Raue, F. 77
 Reeves, M. L. 37
 Rimón, G. 331
 Rosenthal, W. 321
 Rossi, S. 443
 Rossignol, B. 111
 Roufogalis, B. 303
 Roy, M. 727
- Salimath, B. P. 651
 Sanborn, B. M. 619
 Sando, J. J. 595
 Santi, P. 385
 Savage, A. L. 11
 Savitha, G. 651
 Scheglmann, D. 287
- Schepp, W. 321
 Scherübl, H. 77
 Schmidtler, J. 321
 Schmitz-Peiffer, C. 37
 Schultz, G. 77
 Schultz, P. 153
 Schusdziarra, V. 321
 Sergheraert, C. 111
 Shimada, F. 351
 Shirakawa, S. 453
 Sieghart, W. 231
 Simboli-Campbell, M. 99
 Simpson, I. A. 87
 Singh, S. P. 619
 Standaert, M. L. 133
 Stannek, P. 153
 Stith, B. J. 393
 Sundquist, J. 795
 Suzuki, A. 51, 479
 Suzuki, Y. 351
- Taberner, P. V. 365
 Tachado, S. D. 61
 Taira, M. 351
 Tamm, I. 675
 Tertrin-Clary, C. 727
 Testori, A. 145
 Thomas, H. M. 641
 Thomas, J. M. 417, 571
 Tokuda, H. 261
 Tsuruta, S. 543
 Tysnes, O.-B. 611
- Umezawa, K. 487
- Verhoeven, A. J. 501
 Vila, M. 133
 Wakefield, I. K. 379
 Wakelam, M. J. O. 267
 Walter, U. 189
 Weaver, V. M. 293
 Welsh, J. 99, 293
 Wen, Yeshao 619
 Wolff, J. 87
 Woscholski, R. 209
 Wyke, A. W. 267

Author Index

Yamamoto, S. 757
Yoshida, S. 351
Youdim, M. B. H. 553
Yu, Bingzhi 133

Zaikina, I. V. 583
Zhang, Yawen 777
Zhou, Cheng-Jing 61
Ziegler, R. 77
Zink, A. 77
Zoukhri, D. 111

Cellular Signalling

Aims and Scope: This journal will publish original papers covering all aspects of mechanisms, actions and structural components of cellular signalling systems. The emphasis will be on the production, regulation, degradation and action of second messengers; the structure, regulation and action of receptors; guanine nucleotide regulatory proteins; effector systems, such as tyrosyl kinases, adenylate and guanylate cyclase and ion channels; the effect of cellular signalling events on the functioning, growth and differentiation of target cells in normal and pathological states and also cellular oncogenes. Within the scope of the journal, manuscripts dealing with biochemistry, cell biology, molecular biology, pharmacology, neurobiology, molecular endocrinology and molecular oncology will be welcomed. The journal will also publish short original reviews on topical subjects.

INSTRUCTIONS TO AUTHORS

Cellular Signalling will endeavour to give authors as rapid a decision as possible concerning the acceptability of their manuscript. Final decisions concerning acceptability will be made both on the novelty of the work and its scientific content.

Cellular Signalling will accept original research papers written in a concise style which describe key findings. Manuscripts should be submitted in triplicate to the Editorial Office.

Cellular Signalling will also publish topical *mini reviews* of approximately 2000–3000 words. In general these occasional contributions will be solicited by the Editorial Board. However, intending contributors should send a brief summary of their proposed *mini review* to the Editorial Office for comment on its possible acceptability.

Cellular Signalling will also publish *Comments* on published work. These will be short statements which are generally not longer than 450 words. They will be subject to the normal editorial reviewing procedure.

Manuscripts, in triplicate, should be sent by air mail or first class post (U.K.) to the Editor-in-Chief:

Professor Miles D. Houslay
Cellular Signalling
Molecular Pharmacology Group
Department of Biochemistry
University of Glasgow
Glasgow G12 8QQ
Scotland, U.K.

Telephone No.—041 339-8855 Extn. 5903

Telex—777070 UNIGLA

Form of manuscripts. These should be in English, typewritten on one side of the paper only and with double-spacing. A margin of approximately 3 cm should be left.

The first page should contain the *title of the paper*, first and last names of each author, the name of the author to whom correspondence should be addressed, the addresses of the authors, a running title of less than 75 characters and 6–8 keywords. The next page should contain a short abstract of the article in less than 150 words. Any abbreviations should also be defined here. The main body of the paper should then start on the following page with:

Introduction—short, concise but sufficient to service the needs of readers with different backgrounds;

Materials and Methods—all methods should be thoroughly described in sufficient detail to allow easy reproduction of the techniques employed. The source and quality of materials used should be given;

Results—clearly set out with appropriate subheadings;

Discussion—this should be succinct, detailing the key findings of the study, their importance and implications. In some instances it may be useful to combine the 'Results' and 'Discussion' sections for clarity and to avoid repetition.

Acknowledgements—should be given at the end of the text.

Tables and Illustrations—should be presented separately from the text. They can be submitted as glossy photographs; line-art in black ink on white card or tracing paper; as high resolution laserprinter output on white paper. The relevant number should be given on the reverse of each of the figures/tables together with the name of the senior author. All figures/tables require separate legends with sufficient detail to allow easy interpretation. Authors should indicate in the margin of their manuscript the optimal position for placement of figures and tables. Colour photographs can be printed but extra costs will be charged to the authors. Estimates will be given on request.

References—these should appear sequentially in the text and be referred to as numbers in brackets. At the end of the text, references should contain, in the following order, the name and initials of all authors, the year of publication, the appropriate journal abbreviation, volume number and both first and last pages of the paper. For books add the editor, the publisher and address, the number of volume, inclusive page numbers and year of publication. Any results quoted as 'personal communication' should be accompanied by written permission from the relevant person.

Examples:

1. Meyer B. J. and Casson L. P. (1986) *Cell* **47**, 871–881.
2. Allfrey V. (1959) *The Cell. Biochemistry, Physiology, Morphology* (Brachet J. and Mirsky A. E., Eds). Academic Press, New York, 200–208.

Footnotes—should be placed at the bottom of the page to which they apply and numbered consecutively in the text.

Proofs—essential additions may be placed at the end of an article but any changes will be done at extra cost to the authors. Proofs will be sent to the authors for return within 48 hours of receipt.

Offprints—25 offprints of each article will be supplied free of charge to the corresponding authors. Additional offprints can be ordered on payment using the reprint order form which will accompany page proofs.

Covering all aspects of this growing science!

JOURNAL OF
**VESTIBULAR
RESEARCH:**
Equilibrium & Orientation
*An International Journal of Experimental
and Clinical Vestibular Science*

Co-Editors-in-Chief:

Ralph M. Jell, PhD
Desmond J. Ireland, MD

Garfield-Weston Vestibular Laboratory, MS-7
Health Sciences Clinical Research Centre,
University of Manitoba, 770 Bannatyne Avenue,
Winnipeg, MB, Canada R3E 0W3

Chairman:

Geoffrey Melvill Jones, MD

Aerospace Research Institute
McGill University, Canada

JOURNAL OF VESTIBULAR RESEARCH:

EQUILIBRIUM AND ORIENTATION is the first journal to provide a forum for this growing branch of neuroscience. Timely experimental and observational reports, clinical studies, reviews and theoretical papers covering major advances in vestibular research are regularly provided by this new journal. Articles, written by authorities in the field, encompass:

1. Neurophysiology of the vestibular and related visual system;
2. Comparative anatomy and physiology of vestibular and related visual function;
3. Vestibular-related human performance in extreme dynamic environments;
4. Psychophysics of vestibular-related phenomena;
5. Modelling of vestibular related neural networks;
6. Motion and space sickness.

SUBSCRIPTION INFORMATION

JOURNAL OF VESTIBULAR RESEARCH
ISSN: 0957-4271 Volume 3, 1993
Published 4 issues per annum
Professional Rate (1993) *£ 38.00/US\$ 72.00
Annual Institutional Rate (1993) *£ 100.00/US\$190.00

*Sterling prices quoted are definitive and apply world-wide. US Dollar prices are quoted for convenience only and are subject to exchange rate fluctuation. Prices include postage and insurance.

RECENT ARTICLES

T.T. KHATER, J.F. BAKER, B.W. PETERSON (USA): Dynamics of Adaptive Change in Human Vestibulo-Ocular Reflex Direction.

M. FETTER, J. DICHGANS (Germany): Adaptive Mechanisms of VOR Compensation after Unilateral Peripheral Vestibular Lesions in Humans.

C.R. FOX, G.D. PAIGE (USA): Effect of Head Orientation on Human Postural Stability Following Unilateral Vestibular Ablation.

I.S. CURTHOYS, M.J. DAI, G.M. HALMAGYI (Australia): Human Otolithic Function Before and After Unilateral Vestibular Neurotomy.

A.B. HMER & R.W. BALOH (USA): Vertical Optokinetic Nystagmus and Optokinetic Afternystagmus in Humans.

M. FETTER, H.C. DIENER, J. DICHGANS (Germany): Recovery of Postural Control after an Acute Unilateral Vestibular Lesion in Humans.

**FREE SAMPLE COPY AVAILABLE
UPON REQUEST**



PERGAMON PRESS

US: 660 White Plains Road, Tarrytown, NY 10591-5153
UK: Headington Hill Hall, Oxford, OX3 0BW, England
A member of the Elsevier Science Publishing Group

